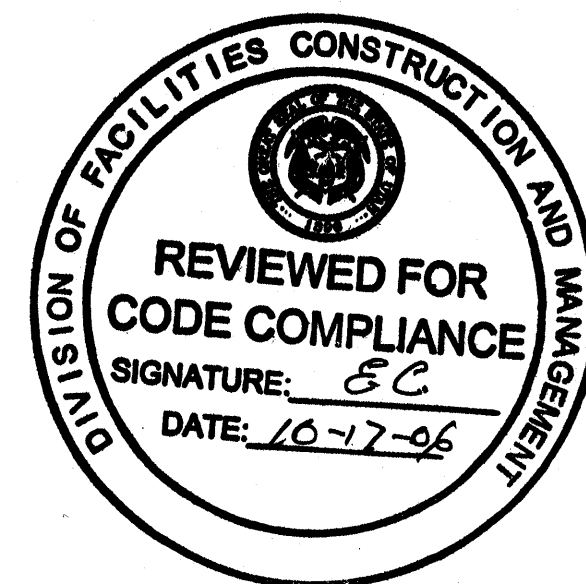


UTAH NATIONAL GUARD MANTI WATER LINE REPLACEMENT

DFCM PROJECT NO.06068470
MANTI, UTAH 84642



DFCM DESIGN AND CODE CRITERIA
(Fee A.E. Attach and fill in applicable data for each drawing submittal)

Applicable Codes:

International Building Code	Year 2003	International Mechanical Code	Year 2003
Planning & Design Criteria to Prevent Architectural Barriers for the Aged and the Physically Handicapped.		International Plumbing Code	2003
		Ashrae/IES Energy Code	2001
		National Electrical Code	2002

A. Occupancy and Group : B / S-1
Change in Use : Yes ☐ No ☒ Mixed Occupancy : Yes ☒ No ☐

B. Type of Construction (Circle)

I. F.R.	II. F.R.	III. 1 HR.	IV. B	V. 1 HR.	VI. N	VII. H.T.	VIII. 1 HR.	IX. N
N.A.								

C. Location on Property : F.R. Ext. Walls (Hrs.): N.R. Ext. Wall Opening(s) Protection (Hrs.): N.R.
N.A. Each Occupancy

D. Occupancy separation required (Hrs.):
Sprinklered: Indicate Yes or No
Stories : 1 or multiple
a. Actual Area²(ft) EXISTING
b. Basic allowable area :
c. Allowable Area Increase due to side yards: N

%	Area (ft)	%	Area (ft)	%	Area (ft)
N.A.					

d. Side yard area increase (ft): N.A.
Accumulative sub-total (b+d):
Sprinkler: area increase (x3 single) (x 2 multi)
e. Total Allowable Area for a single story: N.A.
x 2 for multi-story building:
f. Ratio = a/e (Actual divided by allowable)

E. Fire-Resistive Requirements (Hrs.): (1 Hr., 2Hr., 3Hr., 4Hr., N. H.T.)
N.A.
Exterior Bearing Walls: _____ Floors - Ceiling Floors _____
Interior Bearing Walls: _____ Roofs - Ceiling Roofs _____
Exterior Non-bearing Walls: _____ Exterior Doors and Windows _____
Structural Frame: _____ Shaft Enclosures _____
Partitions - Permanent: _____
(OCCUPANCY SEPARATION - N.A.)

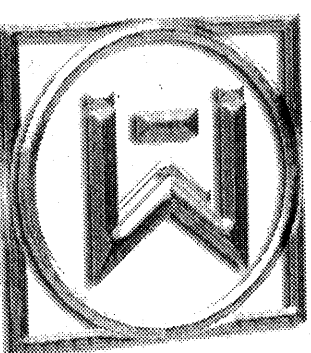
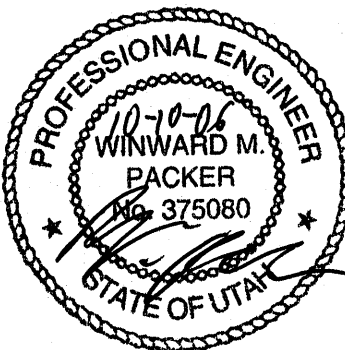


State of Utah—Department of Administrative Services

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT

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MECHANICAL ENGINEER
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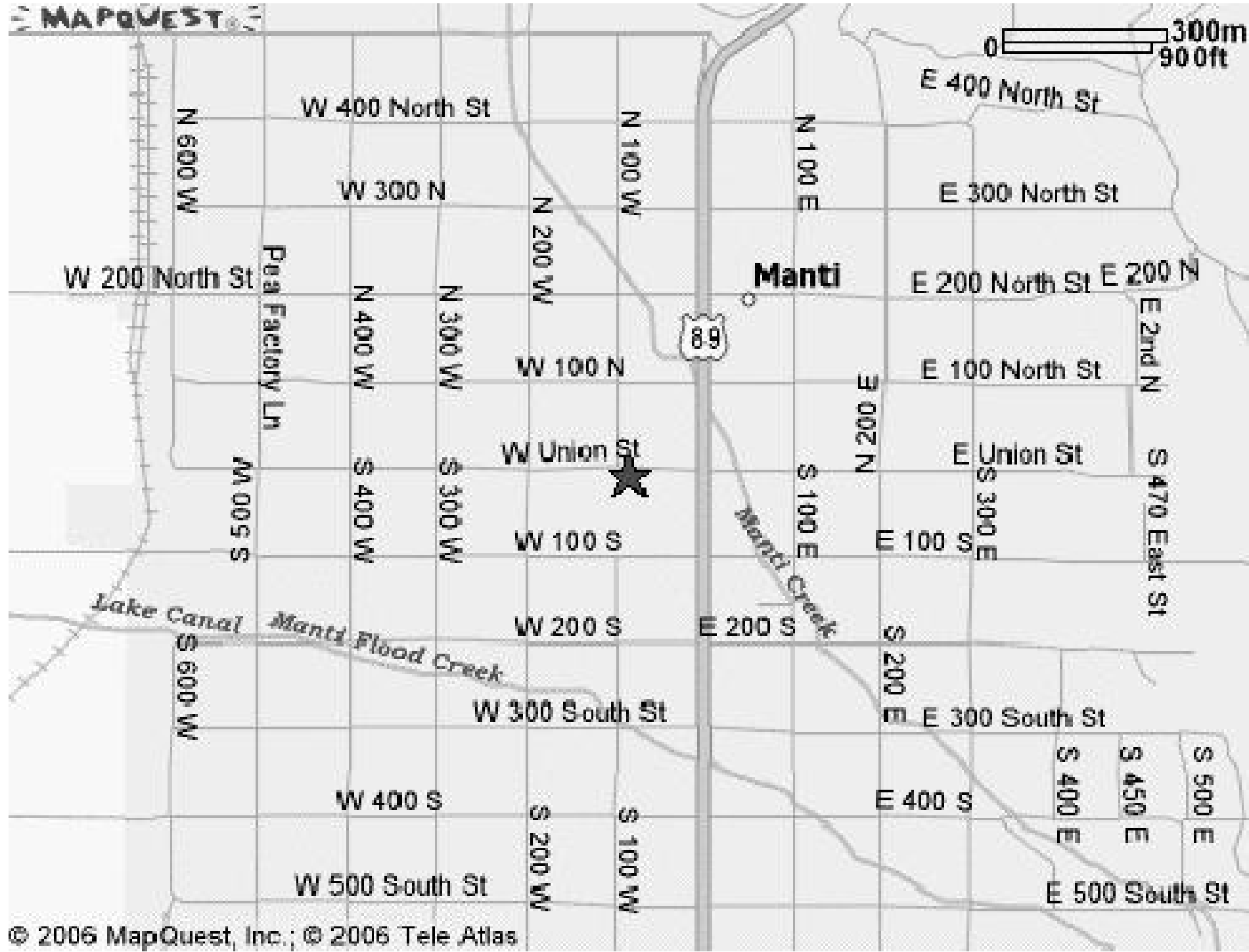
DRAWING INDEX:	
G001	- COVER SHEET
P001	- GENERAL PLUMBING NOTES & LEGEND
PD101	- BASEMENT AND TUNNEL SPACE WATER PIPING DEMOLITION PLAN
PD102	- FIRST FLOOR WATER PIPING DEMOLITION PLAN
PD103	- DEMOLITION PHOTOGRAPHS
PD401	- LARGE SCALE EQUIPMENT ROOM DEMOLITION PLAN
PE101	- BASEMENT AND TUNNEL SPACE WATER PIPING PLAN
PE102	- FIRST FLOOR NEW WATER PIPING PLAN
PE401	- LARGE SCALE EQUIPMENT ROOM PIPING PLAN
PE501	- PLUMBING PIPING DETAILS AND SCHEDULES

D

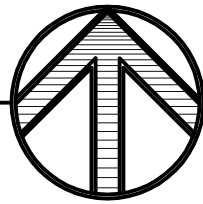
C

B

A



MANTI NATIONAL GUARD ARMORY LOCATION

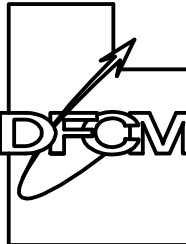


PLUMBING LEGEND			
MEANING	SYMBOL OR ABBREVIATION	MEANING	SYMBOL OR ABBREVIATION
HOT WATER LINE	— — — — —	SOLENOID VALVE	
COLD WATER LINE	— — — — —	INLINE CIRCULATING PUMP	
HOT WATER RECIRCULATING PIPING	— — — — —	HYDRANT	
WATER PIPING DEMOLITION	- - - - -	PRESSURE REDUCING VALVE	
STRAINER		BALL VALVE	
CONNECTION TO EXISTING PIPING		UNION	
POINT OF REMOVAL		PRESSURE GAUGE	
CHECK VALVE		THERMOMETER	

PLUMBING GENERAL NOTES:

- G-1
- ALL PLUMBING SHALL BE INSTALLED AND CONFORM TO THE 2003 EDITION OF THE INTERNATIONAL PLUMBING CODE (IPC) WITH UTAH ANNOTATIONS AND LOCAL AUTHORITY REQUIREMENTS.
- G-2
- ALL PIPING MATERIALS SHALL MEET ALL IPC AND STATE REQUIREMENTS.
- G-3
- ALL MATERIALS SHALL BE NEW AND SHALL BE DOMESTIC MADE.
- G-4
- PROVIDE VACUUM BREAKERS AND BACK FLOW PREVENTERS WHERE REQUIRED BY CODE OR WHERE THERE MAY BE ANY POSSIBLE CHANCE FOR CROSS CONTAMINATION. PREVENTERS SHALL BE INSTALLED IN ACCORDANCE WITH IPC WITH UTAH AMMENDMENTS.
- G-5
- ALL PLUMBING INFORMATION IS NOT LIMITED TO THE PLUMBING DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXISTING CONDITIONS AND OBSTACLES.
- G-6
- THE DRAWINGS ARE DIAGRAMMATIC. BECAUSE OF THE SMALL SCALE OF THE DRAWING, THEY DO NOT SHOW EVERY OFFSET, BEND OR ELBOW NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. ALL PIPING SHALL BE CHECKED AND COORDINATED WITH THE DRAWINGS AND EXISTING CONDITIONS.
- G-7
- ANY AND ALL ALTERATIONS TO THE SYSTEM SHOWN SHALL BE SUBMITTED TO THE ENGINEER IN WRITING PRIOR TO ANY CHANGES. CONTRACTOR SHALL BE RESPONSIBLE IF CHANGES ARE MADE WITHOUT APPROVAL.
- G-8
- ALL WATER SYSTEMS SHALL MEET THE REQUIREMENTS OF ANSI/NSF STANDARD 61 SECTION 9 (1998), CONCERNING METAL CONTAMINANTS IN THE WATER SYSTEM.
- G-9
- WATER PIPING SHALL NOT BE ROUTED IN OUTSIDE WALLS OR ON EXTERIOR SIDE OF BUILDING INSULATION ENVELOPE.
- G-10
- WATER HAMMER ARRESTORS SHALL BE INSTALLED IN ALL WATER LINES WITH QUICK OPEN OR QUICK CLOSE VALVES.

WATER HAMMER ARRESTOR SCHEDULE:
TYPE A 1-11 FIXTURE UNITS
TYPE B 12-32 FIXTURE UNITS
TYPE C 33-60 FIXTURE UNITS
TYPE D 61-113 FIXTURE UNITS
- G-11
- CONTRACTOR SHALL FIELD VERIFY LOCATIONS OF ALL EXISTING PIPING, CONDITIONS, TIE-INS ETC.
- G-12
- ALL CW, HW, HWR, VALVES ETC. SHALL BE INSULATED. INSULATION SHALL BE INSTALLED BY A LICENSED INSULATED CONTRACTOR.
- G-13
- THIS CONTRACTOR SHALL CONTRACT WITH A DESIGN BUILD ELECTRICAL CONTRACTOR TO DESIGN AND INSTALL THE ELECTRICAL PORTION OF THIS PROJECT i.e. PUMP CONTROLS AND ELECTRICAL.



CONSULTANTS



PROJECT NAME & ADDRESS

**UTAH NATIONAL
GUARD, MANTI
WATER LINE
REPLACEMENT**

DFCM No.06068470

Manti, Utah

MARK	DATE	REVISION
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PROJECT MANAGER:

WP

DRAWN BY:

STAFF

CHECKED BY:

SLW

DATE:

10/10/06

WHW JOB NO.:

06026

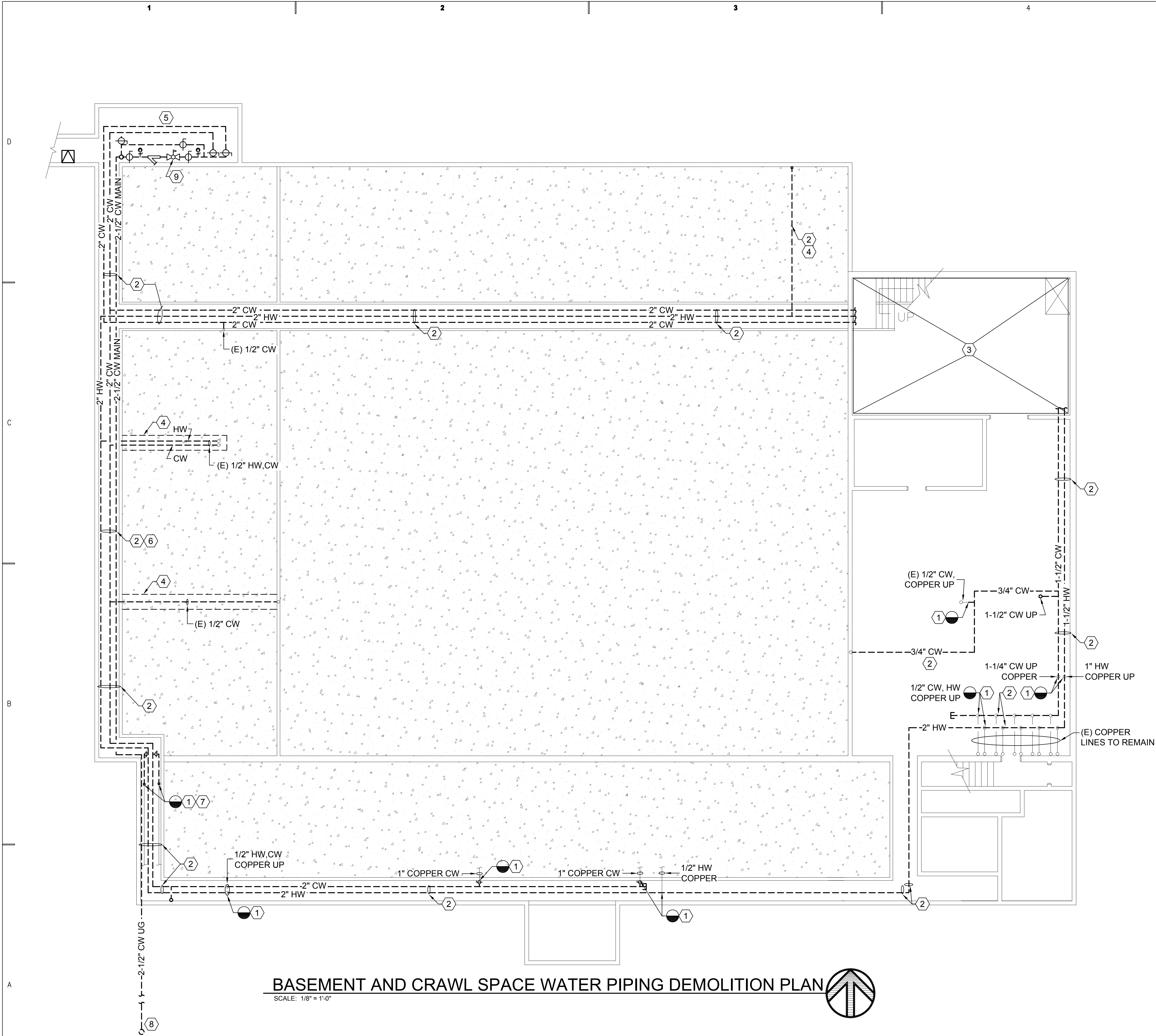
SHEET TITLE

**GENERAL PLUMBING
NOTES AND LEGEND**

SHEET NO.

P001





SHEET NOTES

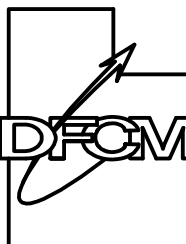
SHEET NOTES:

- 1 REMOVE GALVANIZED PIPING AND DIELECTRIC UNION BACK TO POINT OF THE COPPER PIPING, IN THIS APPROXIMATE LOCATION.
- 2 REMOVE GALVANIZED DOMESTIC WATER PIPING, INSULATION, RODS, HANGERS ETC.
- 3 SEE SHEET PD401FOR LARGE SCALE DEMOLITION PLAN THIS AREA.
- 4 CUT EXISTING CONCRETE FLOOR TO REMOVE EXISTING WATER PIPING UNDER FLOOR.
- 5 ALL VALVES IN GOOD CONDITION AT WATER HEADER LOCATION SHALL BE RETURNED TO OWNER.
- 6 SEE PHOTO A3 SHEET PE402.
- 7 SEE PHOTO A4 SHEET PE402.
- 8 EXCAVATE AND REMOVE EXISTING MAIN TO METER DISCHARGE CONNECTION INCLUDING ANY GRASS, LANDSCAPE, SIDEWALKS ETC. DISTURBED BY EXCAVATION AND PIPING REMOVAL.
- 9 REMOVE EXISTING PRV STATION, VALVES ETC.

GENERAL NOTES:

1. INTENT OF THIS PROJECT IS TO REMOVE ALL GALVANIZED DOMESTIC WATER PIPING.
2. VERIFY WITH MAINTENANCE STAFF ALL ITEMS THAT ARE TO BE SALVAGED TO OWNER.
3. PIPING ON THIS SHEET IS OVER HEAD AND IN TUNNEL UNLESS NOTED OTHERWISE.

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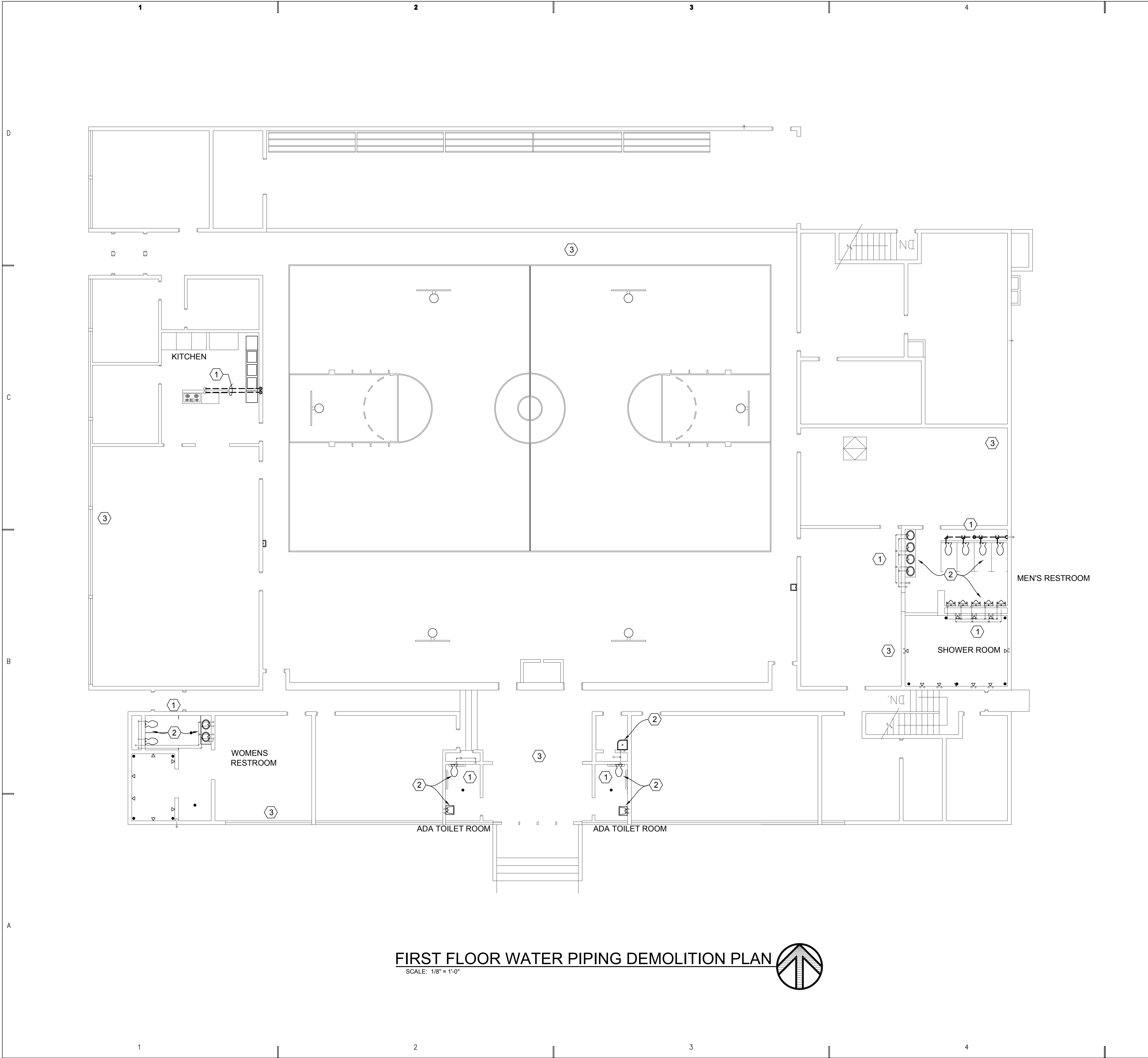
SHEET TITLE

**BASEMENT AND TUNNEL
WATER PIPING
DEMOLITION PLAN**

SHEET NO.

PD101





FIRST FLOOR WATER PIPING DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

SHEET NOTES

- SHEET NOTES:
- 1 REMOVE ALL GALVANIZED PIPING SERVING PLUMBING FIXTURES. EXISTING COPPER PIPING SHALL REMAIN.
 - 2 PLUMBING FIXTURES SHALL REMAIN.
 - 3 SEE SHEET PD101 FOR LOCATION OF PIPING UNDER FLOOR.

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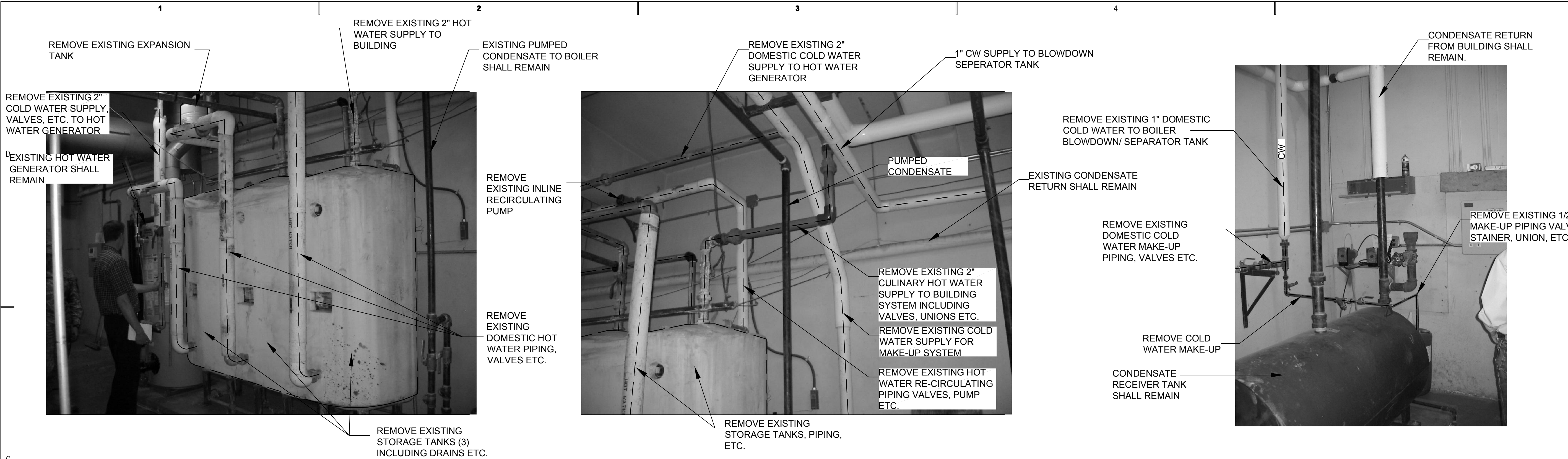
WHW JOB NO.:
06026

SHEET TITLE



**FIRST FLOOR WATER
PIPING DEMOLITION PLAN**

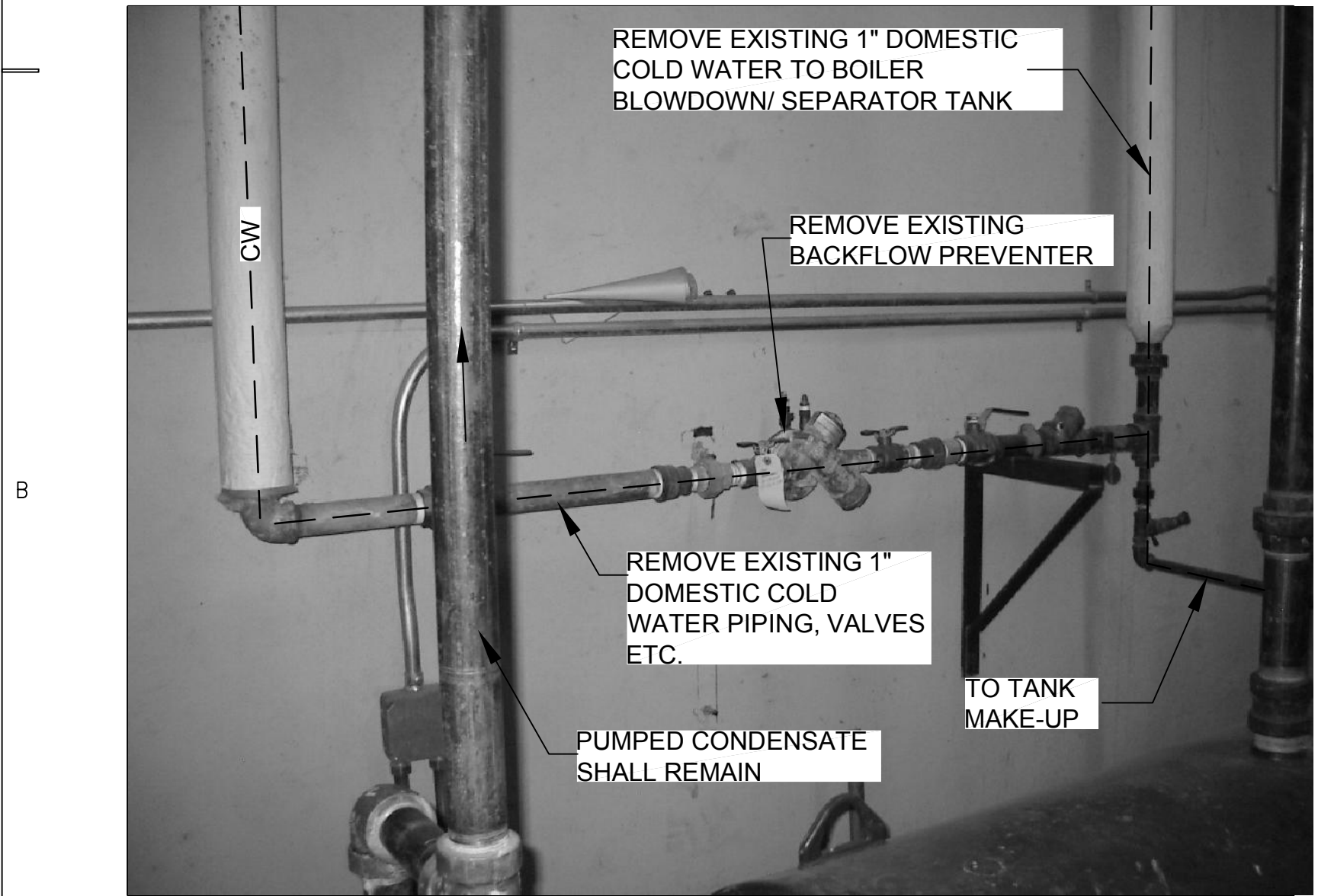
SHEET NO.
PD102



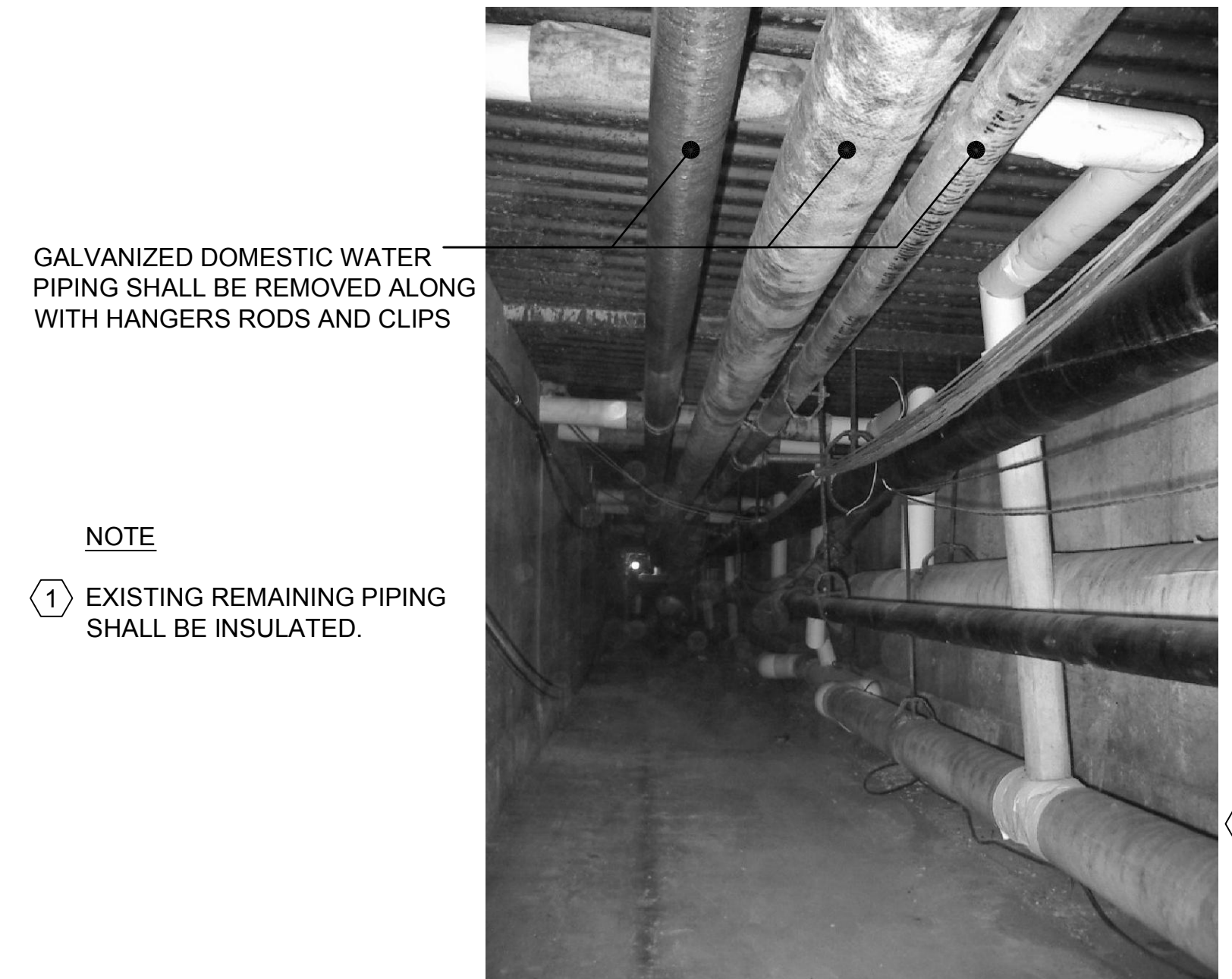
C1 EXISTING DOMESTIC HOT WATER GENERATOR SYSTEM
SCALE: NONE

C2 EXISTING EQUIPMENT ROOM PLUMBING PIPING
SCALE: NONE

C4 EXISTING STEAM SYSTEM MAKE-UP WATER SYSTEM
SCALE: NONE



A1 EXISTING WATER MAKE-UP FEED SYSTEM
SCALE: NONE



A3 PIPING IN TUNNEL
SCALE: NONE



A4 COPPER PIPING IN TUNNEL
SCALE: NONE

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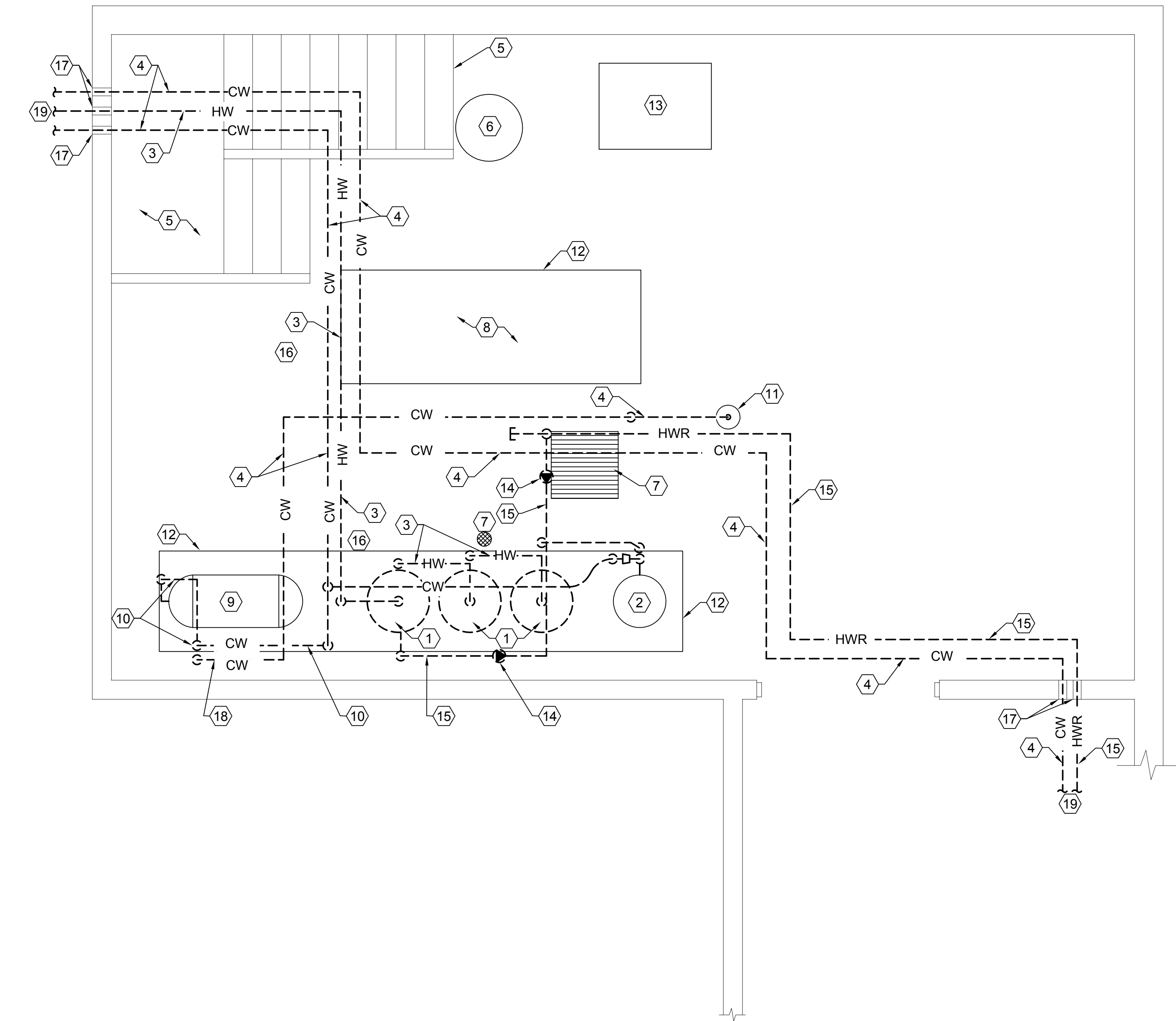
SHEET TITLE

PROFESSIONAL ENGINEER
10/10/06
WINWARD M.
PACKER
No. 375980
STATE OF UTAH

DEMOLITION
PHOTOGRAPHS

SHEET NO.

PD103



EQUIPMENT ROOM PIPING DEMOLITION PLAN
SCALE: 3/8" = 1'-0"

SHEET NOTES

- SHEET NOTES:
- 1 REMOVE EXISTING HOT WATER STORAGE TANKS, PIPING, DRAINS, VALVES ETC.
 - 2 EXISTING HOT WATER GENERATOR SHALL REMAIN.
 - 3 REMOVE AND REPLACE CULINARY HW PIPING.
 - 4 REMOVE AND REPLACE CULINARY CW PIPING.
 - 5 EXISTING STAIRWELL.
 - 6 EXISTING SUMP PUMP SHALL REMAIN.
 - 7 EXISTING DRAINS SHALL REMAIN.
 - 8 EXISTING STEAM BOILER SHALL REMAIN.
 - 9 EXISTING CONDENSATE RECEIVER TANK SHALL REMAIN.
 - 10 REMOVE EXISTING CW MAKE-UP FOR STEAM SYSTEM COMPLETE WITH VALVES, BACKFLOW PREVENTOR ETC.
 - 11 BLOW DOWN SEPARATOR SHALL REMAIN.
 - 12 CONCRETE BASE SHALL REMAIN.
 - 13 EXISTING COMPRESSOR SHALL REMAIN.
 - 14 REMOVE EXISTING HOT WATER RECIRCULATING PUMPS.
 - 15 REMOVE AND REPLACE CULINARY HOT WATER RECIRCULATING PIPING.
 - 16 FIELD VERIFY ALL PIPING LOCATIONS AND SIZES.
 - 17 EXISTING PIPE OPENINGS IN WALL SHALL REMAIN.
 - 18 THIS COLD WATER PIPING IS ACTUALLY ON TOP. PIPING IS SHOWN THIS WAY FOR CLARITY.
 - 19 SEE SHEET PD101 FOR CONTINUATION.

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Manti, Utah

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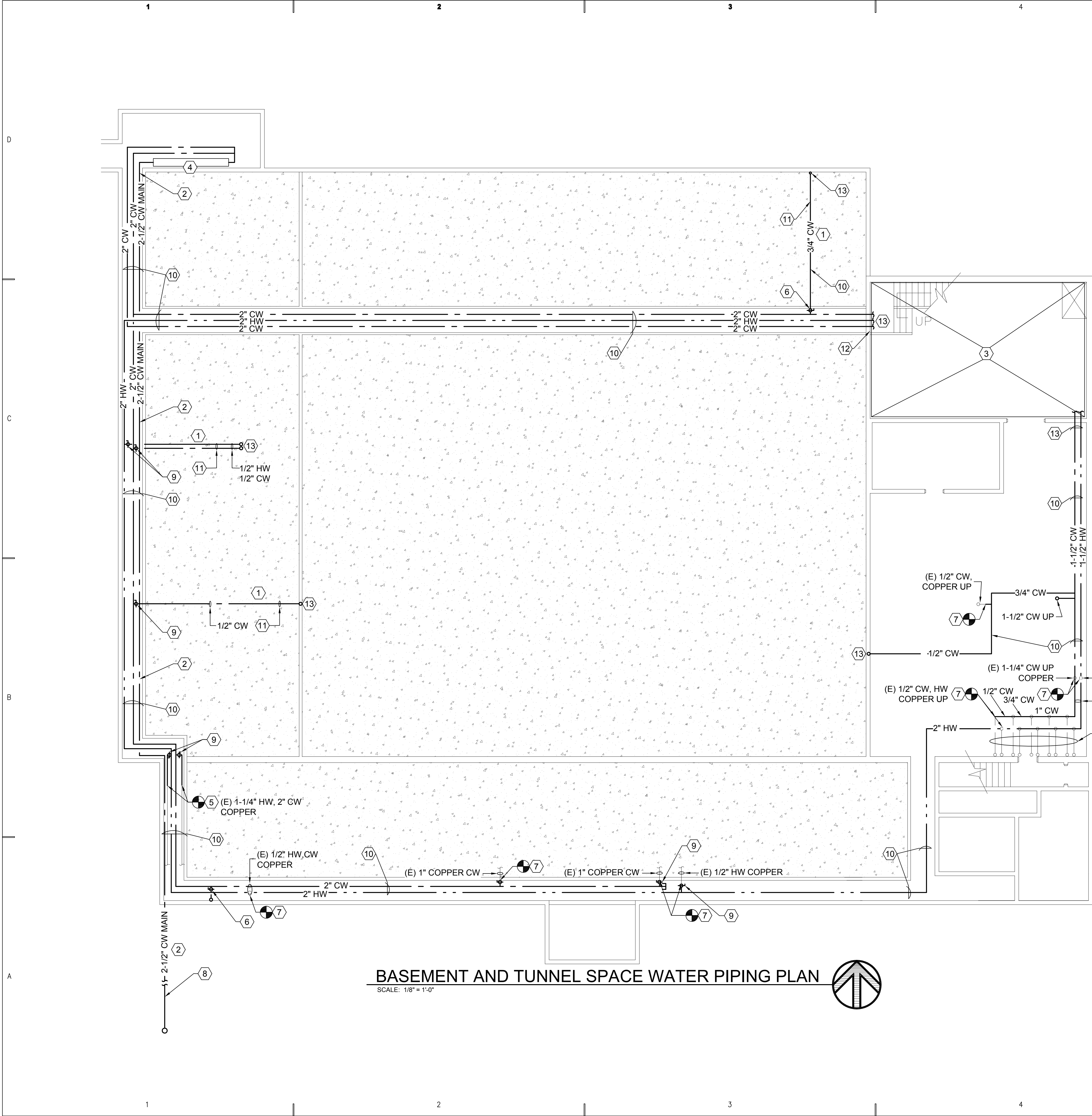
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06026

SHEET TITLE
**LARGE SCALE EQUIPMENT
ROOM DEMOLITION PLAN**

SHEET NO.
PD401



SHEET NOTES

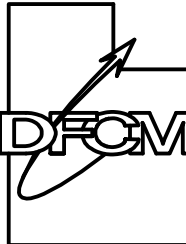
SHEET NOTES:

- 1 REPLACING THESE LINES SHALL REQUIRE SAW CUTTING OF THE FLOOR, EXCAVATION, BACK-FILL, COMPACTION, AND CONCRETE PATCH.
- 2 REPLACE 2-1/2" CW MAIN FROM THE METER LOCATED OUTSIDE AT THE SIDEWALK TO THE PRV STATION WITH TYPE L COPPER IN TRENCH AND TYPE K FOR DIRECT BURIED.
- 3 SEE LARGE SCALE PIPING PLAN PE401 FOR NEW PIPING LAYOUTS THIS AREA.
- 4 REMOVE AND REPLACE EXISTING WATER HEADER PRV STATION. SEE DETAIL B4/501.
- 5 SEE PHOTO A4/PD103.
- 6 PROVIDE NEW 3/4" - 1/4" TURN BALL VALVE IN EACH WATER LINE SERVING THE NEW WALL HYDRANTS.
- 7 CONNECT NEW HOT AND COLD WATER TYPE L COPPER PIPING TO EXISTING COPPER PIPING. (TYPICAL)
- 8 REPLACE ALL GRASS, LANDSCAPE, SIDEWALKS, ETC. REMOVED FOR THE DEMOLITION AND INSTALLATION OF THE COLD WATER MAIN.
- 9 PROVIDE LINE SIZE BALL VALVES IN TUNNEL SPACE.
- 10 INSULATE ALL NEW AND EXISTING COPPER WATER PIPING HOT AND COLD.
- 11 PROVIDE A PVC SCHEDULE 40 SLEEVE FOR COPPER PIPING UNDER FLOOR.
- 12 CONTRACTOR AS AN OPTION MAY TEMPORARILY REMOVE CMU WALL FOR BETTER ACCESS TO TUNNEL. REPLACE WALL WHEN COMPLETE. VERIFY STRUCTURAL BEFORE WALL REMOVAL.
- 13 SEE SHEET PE102 FOR CONTINUATION OF WATER PIPING.

GENERAL NOTES:

1. REPLACE ALL VISIBLE GALVANIZED PIPING WITH COPPER.

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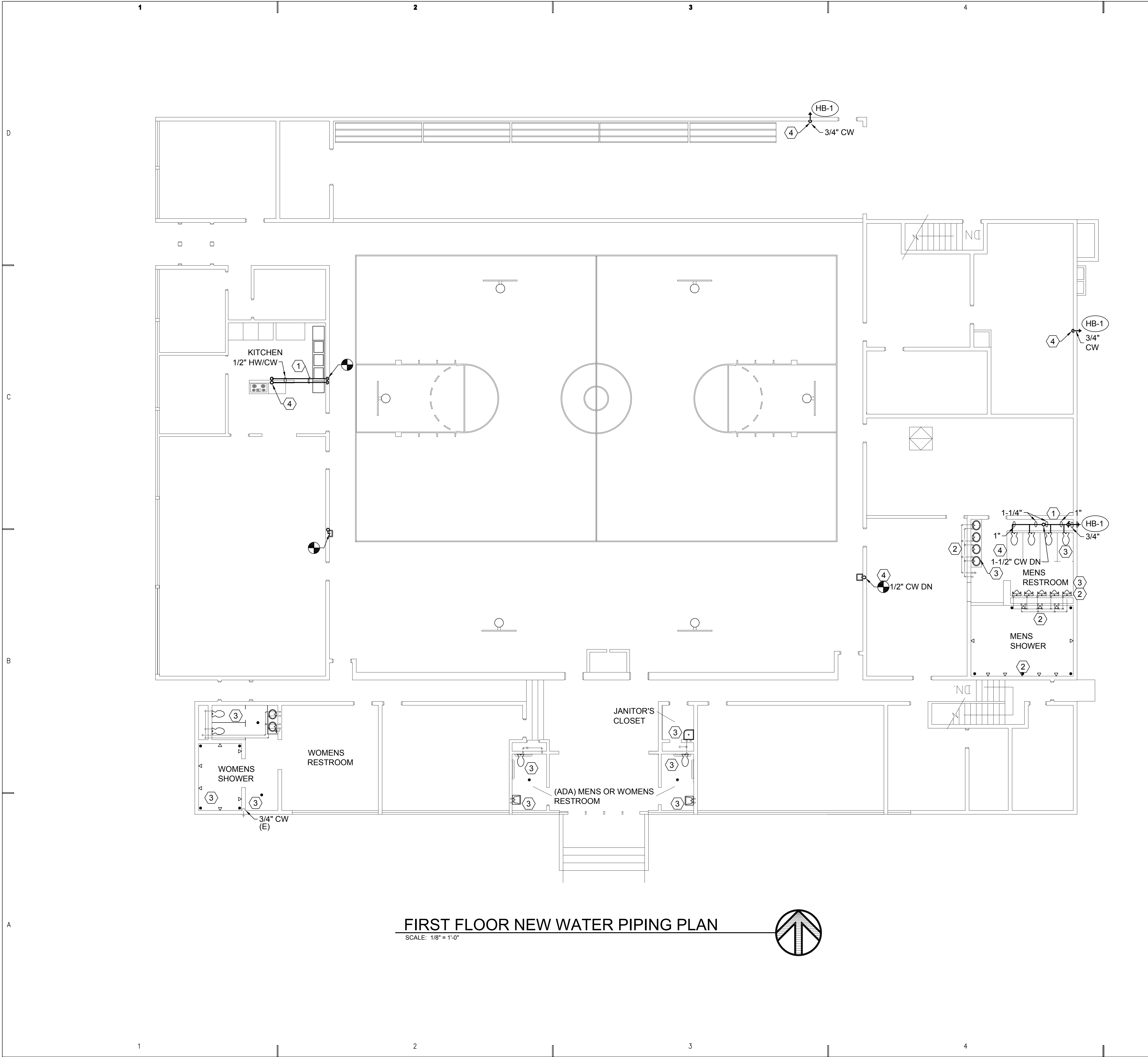
SHEET TITLE

**BASEMENT AND TUNNEL
SPACE WATER PIPING
PLAN**

SHEET NO.

PE101





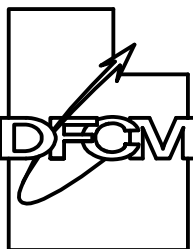
SHEET NOTES

- 1 PROVIDE NEW HW & CW WATER PIPING.
- 2 EXISTING COPPER WATER PIPING SERVING THE SHOWERS, LAVATORIES AND URINALS SHALL REMAIN. INSULATE EXISTING PIPING.
- 3 EXISTING PLUMBING FIXTURES AND PIPING SHALL REMAIN.
- 4 SEE SHEET PE101 FOR CONTINUATION.

1. GENERAL NOTES:

REPLACE ALL VISIBLE GALVANIZED PIPING WITH COPPER.

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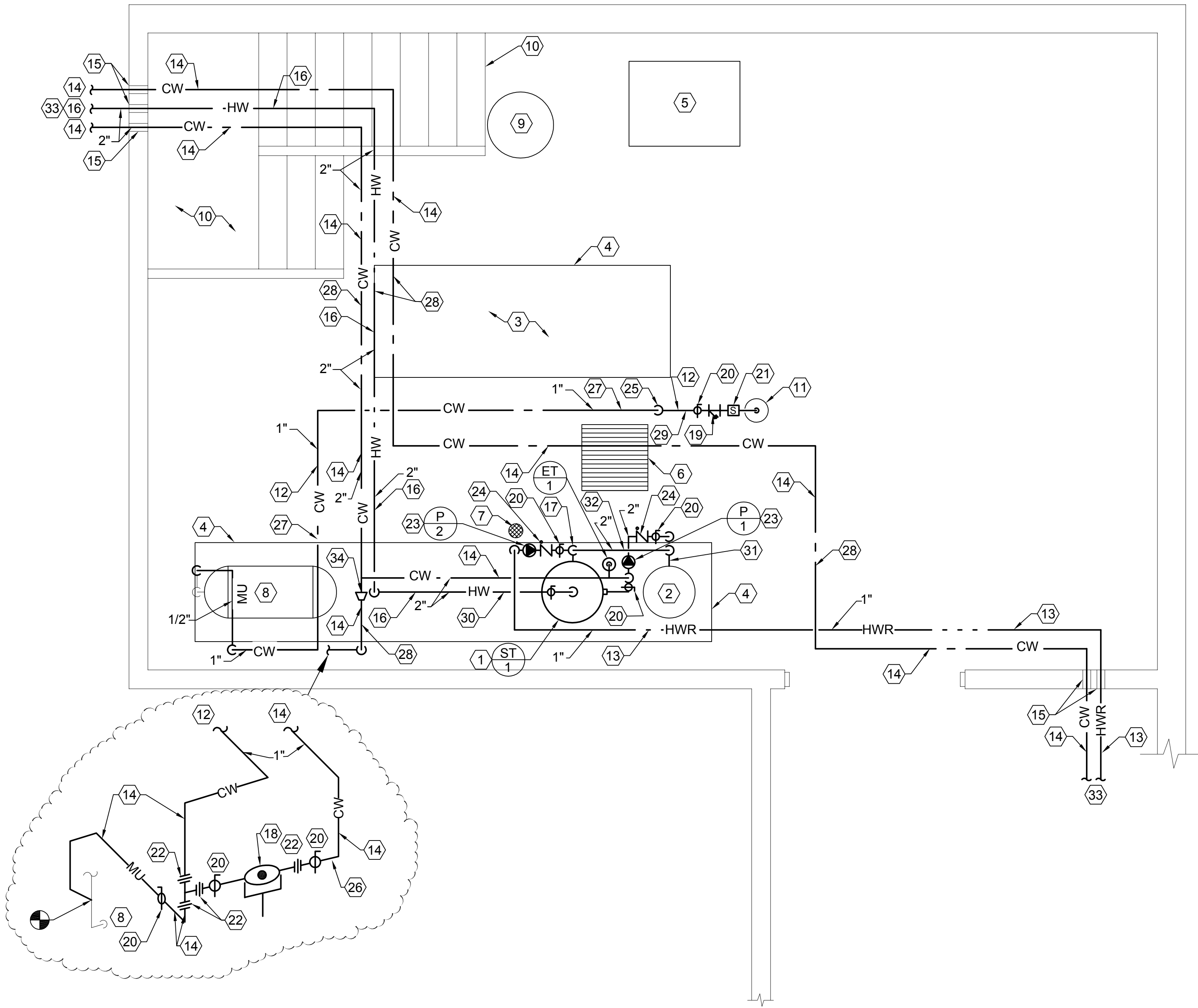
SHEET TITLE

**FIRST FLOOR NEW WATER
PIPING PLAN**

SHEET NO.

PE102





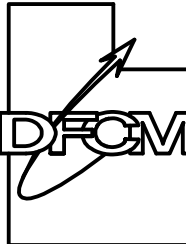
EQUIPMENT ROOM PIPING PLAN
SCALE: 3/8" = 1'-0"

SHEET NOTES

SHEET NOTES:

- 1 PROVIDE NEW 200 GAL. VERTICAL HOT WATER STORAGE TANK. 32"x77" AND PIPE TO EXISTING HOT WATER HEATER. SEE SHEET PE501 FOR PIPING FLOW SHEET.
- 2 EXISTING HOT WATER HEATER SHALL REMAIN.
- 3 EXISTING BOILER.
- 4 EXISTING CONCRETE PAD.
- 5 EXISTING AIR COMPRESSOR.
- 6 EXISTING FLOOR TRENCH DRAIN.
- 7 EXISTING FLOOR DRAIN.
- 8 EXISTING CONDENSATE RECEIVER TANK.
- 9 EXISTING SUMP AND PUMP SET.
- 10 EXISTING STAIRS UP.
- 11 EXISTING BLOWDOWN SEPARATOR TANK.
- 12 NEW 1" TYPE L COPPER TO BLOWDOWN TANK.
- 13 NEW 1" DOMESTIC HOT WATER RECIRCULATING LINE - TYPE L COPPER. ROUTE THROUGH SAME WALL PENETRATION AS EXISTING REMOVED PIPING.
- 14 NEW DOMESTIC COLD WATER PIPING. TYPE L COPPER.
- 15 RE-USE EXISTING WALL OPENINGS. MODIFY HOLES IF NEW PIPING AND INSULATION WILL NOT FIT THRU EXISTING OPENINGS.
- 16 NEW DOMESTIC HOT WATER PIPING. TYPE L COPPER.
- 17 ROUTE HWR PIPING TO STORAGE TANK AND CONNECT INTO LOWEST CONNECTION ON STORAGE TANK. SEE SHEET PE501.
- 18 NEW BACKFLOW PREVENTER, FUNNEL AND DRAIN TO FLOOR.
- 19 NEW INLINE Y- STRAINER.
- 20 NEW BALL VALVE.
- 21 NEW SOLENOID VALVE- RECONNECT SAME AS EXISTING.
- 22 NEW UNION.
- 23 NEW INLINE CIRCULATING PUMP. SEE SCHEDULE PE501.
- 24 NEW CHECK VALVE.
- 25 1" CW DROP TO ELEVATION OF BLOW DOWN/ SEPARATOR CONNECTION.
- 26 APPROXIMATELY 4'-4" ε OF PIPE TO FLOOR.
- 27 APPROXIMATELY 10'-4"ε OF PIPE TO FLOOR.
- 28 APPROXIMATELY 11'-1"ε OF PIPE TO FLOOR.
- 29 APPROXIMATELY 1'-9" ε OF PIPE TO FLOOR.
- 30 APPROXIMATELY 9'-3"- ε OF PIPE TO FLOOR.
- 31 APPROXIMATELY 5'-10"ε OF PIPE TO FLOOR.
- 32 APPROXIMATELY 7'-5"ε OF PIPE TO FLOOR.
- 33 SEE SHEET PE101 FOR CONTINUATION.
- 34 2"x1" CONCENTRIC REDUCER.

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PROJECT NAME & ADDRESS

**UTAH NATIONAL
GUARD, MANTI
WATER LINE
REPLACEMENT**

DFCM No.06068470

Manti, Utah

MARK	DATE	REVISION

PROJECT MANAGER:

WP

DRAWN BY:

STAFF

CHECKED BY:

SLW

DATE:

10/10/06

WHW JOB NO.:

06026

SHEET TITLE

**LARGE SCALE EQUIPMENT
ROOM PIPING PLAN**

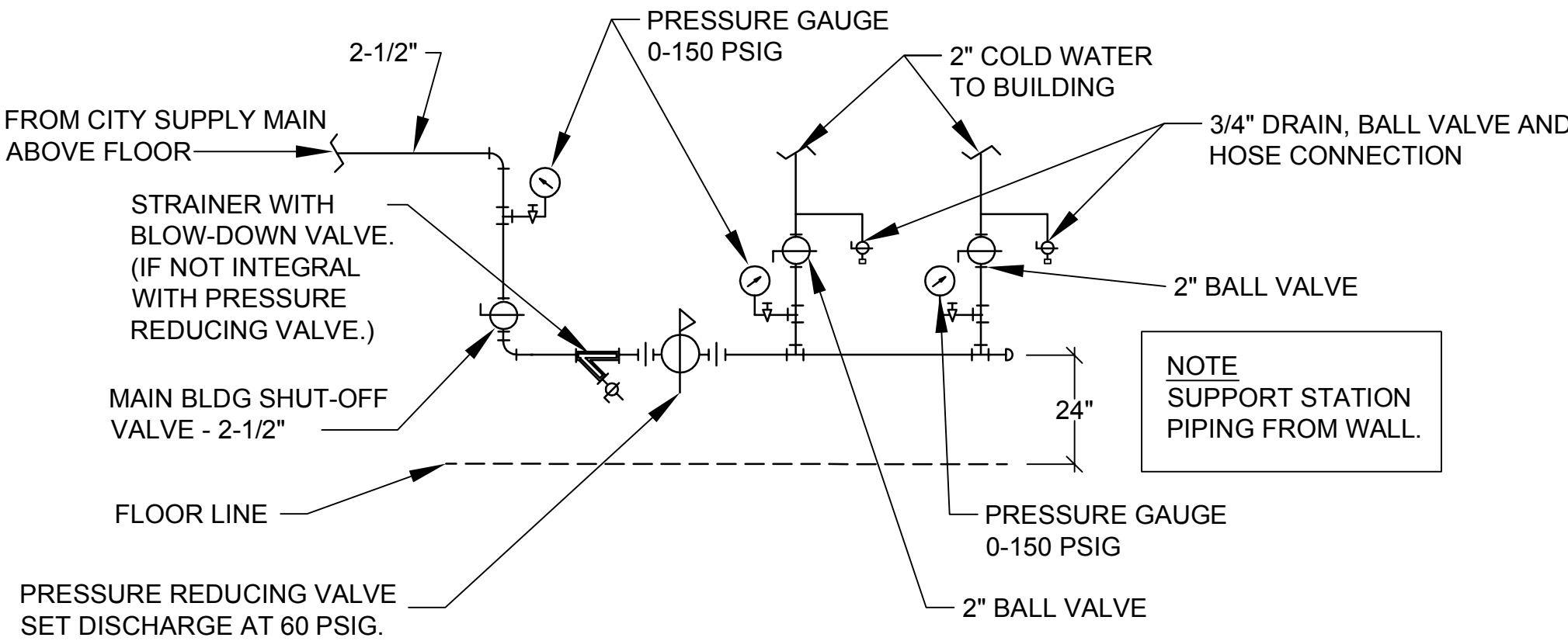
SHEET NO.

PE401

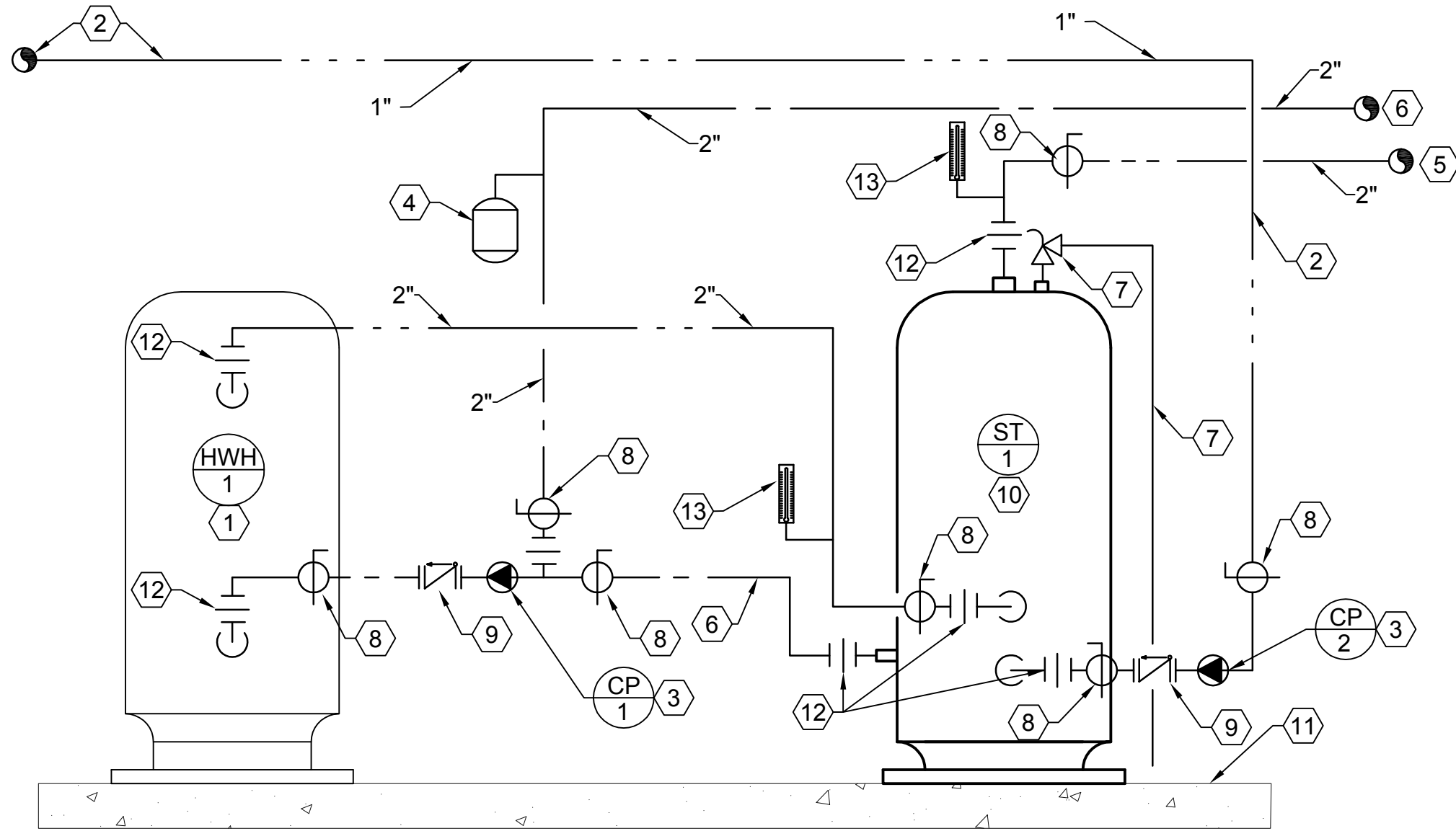


PLUMBING FIXTURE SCHEDULE							
SYMBOL	FIXTURE	INDIVIDUAL LINE SIZES					REMARKS
		TRAP	WASTE	VENT	COLD WATER	HOT WATER	
HB-1	HOSE BIBB	-	-	-	1/2	-	VACUUM BREAKER
H-1	HYDRANT	-	-	-	3/4"	-	NON FREEZE WALL HYDRANT W/ VACUM BREAKER

CIRCULATION PUMP SCHEDULE												
SYMBOL	TYPE	GPM	FT. HEAD	RPM	SUCTION SIZE	DISCHARGE SIZE	MOTOR		SIZE	SERVICE	COMMENTS	SCHEDULE NOTES
							V - Ø - Hz	HP				
<div>CP 1</div>	INLINE CIRCULATION PUMP	10	15'	1750	1"	1"	120/1ø/60	1/4	BELL & GOSSETT 1x1x5-1/4	HW RECIRCULATING BETWEEN TANKS	IN-LINE	1,2,3
<div>CP 2</div>	INLINE CIRCULATION PUMP	36	20'	1750	1-1/4"	1-1/4"	120/1ø/60	1/3	BELL & GOSSETT 1-1/4x1/4x5-1/4	HW RECIRCUALTING FOR SYSTEM	IN-LINE	1,2,3
1. PUMPS SIZED AROUND BELL & GOSSETT SERIES 60.												
2. ALL PUMPS SHALL BE SIZED IN THE FLAT PART OF THE CURVE.												
3. SEE SPECIFICATIONS FOR OTHER APPROVED MANUFACTURERS.												



B4 HORIZONTAL WATER PRESSURE REDUCING STATION DETAIL
SCALE: NONE



A3 NEW STORAGE TANK PIPING DETAIL
SCALE: NONE

- DETAIL NOTES:
- 1 EXISTING A.O. SMITH - BTP 199, 104, 81 GAL. CAP., 199,000 BTUH INPUT CULINARY HOT WATER HEATER SHALL REMAIN. REMOVE ALL EXISTING HOT AND COLD WATER PIPING ETC.
 - 2 NEW 1" HOT WATER RECIRCULATING TYPE L COPPER PIPING.
 - 3 NEW HOT WATER RECIRCULATING PUMP.
 - 4 NEW THERMAL EXPANSION TANK.
 - 5 NEW 2" CULINARY HOT WATER TYPE L COPPER PIPING TO DOMESTIC HOT WATER SYSTEM. SEE PE401 FOR CONTINUATION.
 - 6 NEW 2" CULINARY COLD WATER TYPE L COPPER PIPING TO EXISTING HOT WATER HEATER. SEE PE401 FOR SOURCE.
 - 7 NEW TEMPERATURE AND PRESSURE RELIEF VALVE TO FLOOR DRAIN. SECURE PIPING AT FLOOR.
 - 8 NEW ALL BRONZE BALL VALVE.
 - 9 NEW ALL BRONZE SWING CHECK VALVE.
 - 10 NEW CULINARY HOT WATER INSULATED STORAGE TANK 200 GAL., 32"Ø x 77" HIGH, VERTICAL.
 - 11 EXISTING CONCRETE PAD.
 - 12 UNION
 - 13 THERMOMETER 0°F TO 150°F